

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Ex Parte Adrien et al.

Appeal No. _____

Applicants : Christopher L. Adrien et al.
Serial No. : 10/021,602
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BRIEF ON APPEAL

This brief is in furtherance of Appellants' Notice of Appeal filed December 21, 2009, appealing the decision of the Examiner dated June 22, 2009, finally rejecting Claims 5 and 44-57 (all pending claims). A copy of the Claims appears in the Claims Appendix to this brief.

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TABLE OF AUTHORITIES

Cases

Hartness Int'l, Inc. v. Simplimatic Eng'g Co., 819 F.2d 1100, 1108 (Fed.Cir. 1987).....17

I. Real Party In Interest

The real party in interest in this appeal is Erie Scientific Corporation, a corporation of New Hampshire, having a place of business at Portsmouth Industrial Park, 20 Post Road, Portsmouth, New Hampshire 03801, which is the assignee of the present application.

II. Related Appeals and Interferences

There are no related appeals or interferences known to Appellants, the Appellants' legal representative, or to the assignee which will directly bear or be directly affected by or have a bearing on the decision of the Board in the present appeal.

III. Status of Claims

Claims 5 and 44-57 remain pending after the final rejection dated June 22, 2009, and are subject to this appeal. Claims 1-4 and 6-43 have been previously canceled.

Claims 5 and 44-57 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Fisch, RE35,589 (*Fisch*) in view of Tolles, U.S. Patent No. 4,171,866 (*Tolles*).

IV. Status of Amendments

There are no amendments pending after the final rejection of this application.

V. Summary of Claimed Subject Matter

Claim 5 is the only independent claim on appeal.

A. Independent Claim 5

Independent Claim 5 recites a hybridization apparatus of the type providing a chamber for containing a hybridization liquid over a hybridization material immobilized on a substrate. See, Page 7, lines 3-20. The hybridization apparatus includes a substrate comprising a substantially flat top surface adapted to support an immobilized hybridizable material. See, Page 6, lines 20-24. The hybridization apparatus further includes a cover slip having a thickness of at least 0.85 mm, a substantially flat bottom surface, two substantially parallel, opposed longitudinal edges bounding the bottom surface and extending a longitudinal length of the cover slip, and a pair of noncontiguous spacer segments attached to the bottom surface of the cover slip. See, Page 7, line 21 through Page 8 and Page 9, lines 10-11.

Each spacer segment extends substantially contiguously with a full length of a different one of the opposed longitudinal edges of the cover slip and forms a hybridization chamber between the spacer segments, the bottom surface of the cover slip and the top surface of the substrate. See, Page 6, line 30 through Page 7, line 30.

The hybridization chamber has a substantially constant distance between the bottom surface of the cover slip and the top surface of the substrate (see, Page 7, lines 28-29 and Page 8, lines 12-19), and the hybridization chamber extends substantially to opposite ends of the cover slip (see, Page 7, lines 3-20) and comprises an area between the spacer segments of at least 500 square mm (see, Page 6, lines 26-30).

The hybridization chamber is adapted to contain the hybridization material when the cover slip is placed on the substrate with the spacer segments sandwiched therebetween. See, Page 8, line 27 through Page 9, line 9. The cover slip thickness is sufficient to provide a cover slip beam stiffness that prevents adhesion forces from substantially changing the substantially constant distance between the bottom surface of the cover slip and the top surface of the substrate, with the adhesion forces being created by the introduction of hybridization liquid into the hybridization chamber. See, Page 7, line 21 through Page 8, line 11.

VI. Grounds of Rejection to be Reviewed on Appeal

A. The rejection of Claims 5 and 44-57 under 35 U.S.C. §103(a) as being unpatentable over *Fisch* in view of *Tolles*.

VII. Argument

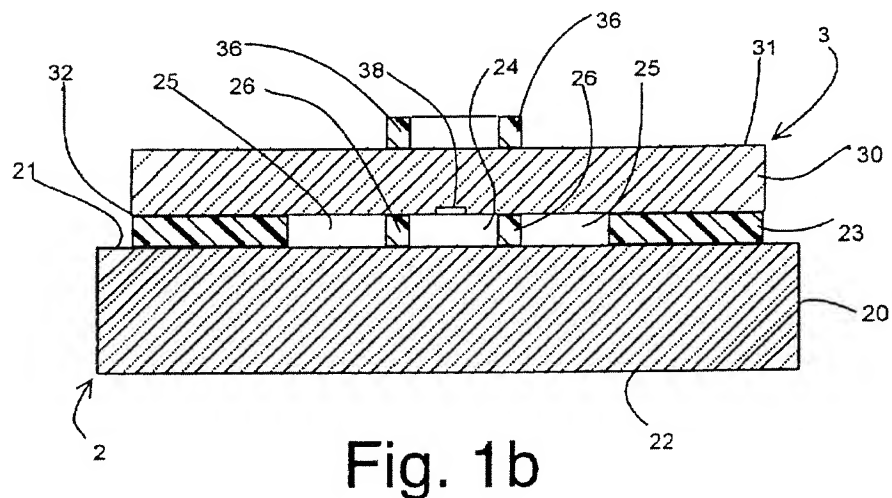
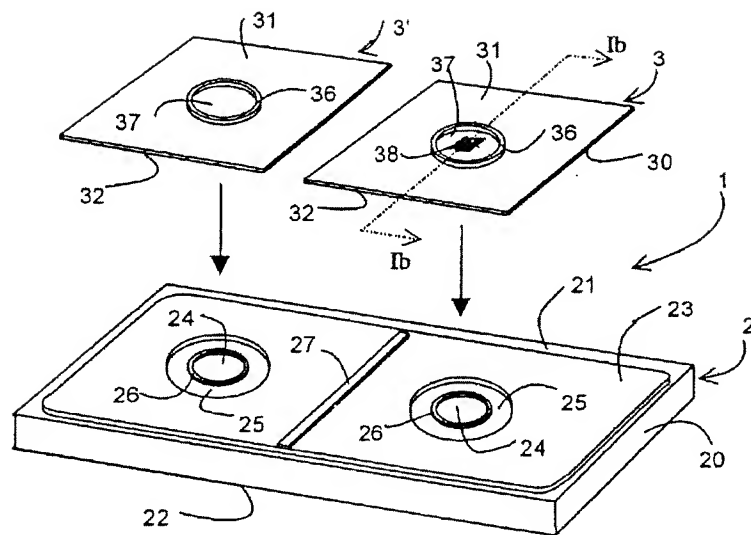
A. Independent Claim 5 is Non-Obvious Over *Fisch* in view of *Tolles*.

Claim 5 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Fisch* in view of *Tolles*. Appellants respectfully submit that this rejection should be reversed for the reasons set forth below.

By way of background, *Fisch* is directed to a hemocytometer having, as shown in Figs. 1a and 1b of *Fisch* reproduced below, a slide (2), a pair of slide covers (3, 3') and a thin spacer layer (23) sandwiched between the slide covers (3, 3') and the slide (2). The space formed by the spacer layer (23) creates a circular sample chamber in which a sample is placed for examination. See, Col. 3, lines 24-31. The slide assembly of *Fisch* further includes an overflow chamber (25) and a separating wall (26). See, Col. 3, lines 33-47.

The thin film (23) is preferably composed of a photoresist, an epoxy or a hydrophobic ink and is either printed on or patterned onto the slide (2). See, Col. 3, lines 52-55.

Each slide cover (3, 3') is made of a transparent glass 0.1 to 0.5 mm thick. See, Col. 3, lines 60-64.



Figs. 1a and 1b of *Fisch*

Tolles is also directed to a reusable hemocytometer having, as shown in Fig. 3 of *Tolles* reproduced below, a flat rectangular glass base plate (18), a pair of spaced parallel tape sections (19) adhesively coated on both sides so that one side of each tape section can be adhered to the base plate (18), and one or more thin flat glass

Each cover slip (20) has a thickness of 0.18 mm for which the microscope objectives have been designed so as to improve the optical quality of the images. See, Col. 1, lines 60-63 and Col. 3, lines 31-39.



Independent Claim 5 recites, as part of the claimed combination, a pair of noncontiguous spacer segments attached to the bottom surface of the cover slip, with

each spacer segment extending substantially contiguously with a full length of a different one of the opposed longitudinal edges of the cover slip.

In Paragraph 7 of the Final Office Action dated June 22, 2009 (Page 4), the Examiner states that “[t]he Examiner agrees that Tolles does not teach spacer segments that extend to the edges of the cover slip.” However, what is not readily apparent from this statement is whether or not Examiner appreciates that independent Claim 5 recites a pair of noncontiguous spacer segments that each extend substantially contiguously with a full length of a different one of the ***opposed longitudinal edges*** of the cover slip (emphasis added).

As is readily apparent from Fig. 3 of *Tolles* reproduced above, the tape sections (19) of *Tolles* do not extend substantially contiguously along a longitudinal dimension of each of the cover slips (20), but rather the tape sections (19) extend along the cross-width dimension of the cover slips (20) -- contrary to the claimed invention as recited in independent Claim 5. Therefore, *Tolles* is completely silent with respect to spacer segments that extend substantially contiguously along the full length of the opposed longitudinal edges of the cover slip as recited in independent Claim 5.

In an attempt to cure this deficiency in *Tolles*, the Examiner asserts in Paragraph 7 of the Final Office Action that this recited feature is allegedly taught by *Fisch*, and refers to Fig. 1b thereof.

However, in viewing Fig. 1b of *Fisch*, the Examiner apparently mistakenly views the left and right portions of the thin layer (23) as comprising a pair of noncontiguous spacer elements that extend substantially continuously along the full length of the

opposed longitudinal edges of the slide covers (3, 3'). More particularly, it appears that the Examiner has failed to appreciate that Fig. 1b of *Fisch* is a cross-sectional view taken along line 1b-1b of Fig. 1a, such that it is clear that what appears to be a pair of noncontiguous spacer segments (23) in Fig. 1b of *Fisch* is rather portions (in cross-section) of the thin layer (23) shown in Fig. 1a. The thin layer (23) simply cannot comprise a pair of noncontiguous spacer segments as recited in independent Claim 5 since the layer (23) is an integral component. Therefore, the portions of the layer (23) shown in cross-section in Fig. 1b of *Tolles* are **not** noncontiguous since they are joined together as part of the integral layer shown in Fig. 1a.

Appellants respectfully submit that, contrary to Examiner's assertion, *Fisch* does not teach or suggest a pair of noncontiguous spacer segments attached to the bottom surface of a cover slip, with each spacer segment extending substantially contiguously with a full length of a different one of the opposed longitudinal edges of the cover slip as recited in independent Claim 5. Moreover, since *Tolles* teaches spacer segments that extend along the cross-width dimension of the cover slips (20), the Examiner has failed to establish a *prima facie* case of obviousness that one of ordinary skill in the art would be motivated to modify the cross-width spacer segments (20) of *Tolles* with spacer segments that extend substantially contiguously with a full length of a different one of the opposed longitudinal edges of the cover slip as recited in independent Claim 5. *Fisch* simply does not provide this missing teaching. Consequently, for at least this reason, Appellants submit that the rejection of independent Claim 5 over the combination of *Fisch* and *Tolles* is improper and should be reversed.

Additionally, independent Claim 5 recites a cover slip having a thickness of at least 0.85 mm. By contrast, in the hemocytometer of *Fisch*, the slide covers (3, 3') comprise a transparent glass having a thickness of 0.1 to 0.5 mm. See, Col. 3, lines 60-62. The thinner cover glass typically minimizes distortion, light loss and facilitates microscopic examination.

In the hemocytometer of *Tolles*, as set forth above, the cover slip of *Tolles* is thin and has a thickness of 0.18 mm specifically designed for the microscope objectives to thereby improve the optical quality of images. See, Col. 1, lines 59-62 and Col. 3, lines 36-39.

Appellants submit that one of ordinary skill in the art would not be motivated to increase the thickness of the cover slips (20) of *Tolles* or the slide covers (3, 3') of *Fisch* to have a greater thickness of at least 0.85 mm as recited in independent Claim 5 since this would potentially destroy the intended optical quality of the cover slips of *Tolles* and *Fisch* for use in microscopic examination. Rather, thinner cover slips would be preferred.

To this end, it is important to appreciate that a hemocytometer, such as described in *Fisch* and *Tolles*, is viewed under a microscope to count blood cells, for example, which requires a thinner not thicker cover glass. With a hybridization chamber on the other hand, the cover slip is typically removed prior to an examination, thereby permitting the use of a thicker cover slip. Thus, there is simply no motivation for one of ordinary skill in the art to increase the thickness of the cover slips described in *Fisch* and *Tolles* to have a thickness of at least 0.85 mm as recited in independent Claim 5

since such an increased thickness may affect the optical qualities of the cover slips of *Fisch* and *Tolles* for use with microscopic examination.

For this reason as well, Appellants respectfully submit that independent Claim 5 is non-obvious over *Fisch* in view of *Tolles*, and Appellants respectfully request that the rejection of independent Claim 5 be reversed.

B. Dependent Claims 44-57 are Non-Obvious Over *Fisch* in view of *Tolles*.

Claims 44-57 depend from independent Claim 5. As set forth above, independent Claim 5 is patentable over *Fisch* in view of *Tolles*. Since independent Claim 5 is patentable, as a matter of law, dependent Claims 44-57 are also patentable. See, e.g., *Hartness Int'l, Inc. v. Simplimatic Eng'g Co.*, 819 F.2d 1100, 1108 (Fed.Cir. 1987) (dependent claims patentable if independent claims are patentable over the art). Appellants therefore submit that the rejections of Claims 44-57 are in error and should be reversed.

CONCLUSION

In conclusion, Appellants respectfully request that the Board reverse the Examiner's rejections of Claims 5 and 44-57, and that the Application be past to issue. If there are any questions regarding the foregoing, please contact the undersigned at the telephone number provided.

Please see the electronic fee calculation sheet for the charge in the amount of \$540 for the Appeal Brief fee as required by 37 C.F.R. §41.20(b)(2) and the charge in the amount of \$2,350 for the five months extension fee as required by 37 C.F.R. §1.17(a)(5). If any other fees are necessary, the Commissioner is hereby authorized to charge any underpayment or fees associated with this communication or credit any overpayment to Deposit Account No. 23-3000.

Respectfully submitted,

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Claims Appendix

1-4. CANCELED.

5. A hybridization apparatus of the type providing a chamber for containing a hybridization liquid over a hybridization material immobilized on a substrate comprising:

- a substrate comprising a substantially flat top surface adapted to support an immobilized hybridizable material;
- a cover slip comprising
 - a thickness of at least 0.85 mm,
 - a substantially flat bottom surface,
 - two substantially parallel, opposed longitudinal edges bounding the bottom surface and extending a longitudinal length of the cover slip, and
 - a pair of noncontiguous spacer segments attached to the bottom surface of the cover slip, each spacer segment extending substantially contiguously with a full length of a different one of the opposed longitudinal edges and forming a hybridization chamber between the spacer segments, the bottom surface of the cover slip and the top surface of the substrate, the hybridization chamber comprising a substantially constant distance between the bottom surface of the cover slip and the top surface of the substrate, the hybridization chamber extending substantially to opposite ends of the cover slip and comprising an area between the spacer segments of at least 500 square mm, and the hybridization chamber adapted to contain the hybridization

material when the cover slip is placed on the substrate with the spacer segments sandwiched therebetween, the cover slip thickness being sufficient to provide a cover slip beam stiffness that prevents adhesion forces from substantially changing the substantially constant distance between the bottom surface of the cover slip and the top surface of the substrate, the adhesion forces being created by the introduction of hybridization liquid into the hybridization chamber.

6-43. CANCELED.

44. A hybridization apparatus as in claim 5 wherein the cover slip comprises a thickness greater than 1 mm and less than or equal to 2.0 mm.

45. A hybridization apparatus as in claim 5 wherein the cover slip has a flatness of about ± 0.005 mm.

46. A hybridization apparatus as in claim 5 wherein each spacer segment is a thin bar having a width of about 75 μ m.

47. A hybridization apparatus as in claim 5 wherein the spacer segments are printed on the bottom surface of the cover slip.

48. A hybridization apparatus as in claim 5 wherein the hybridizable material is arranged in a microarray.

49. A hybridization apparatus as in claim 5 wherein the hybridizable material comprises a nucleic acid.

50. A hybridization apparatus as in claim 5 wherein the hybridizable material comprises a protein.

51. A hybridization apparatus as in claim 5 wherein the hybridization liquid facilitates hybridization reactions between complementary nucleic acids.

52. A hybridization apparatus as in claim 5 wherein the hybridization liquid facilitates hybridization reactions between an antibody and antigen.

53. A hybridization apparatus as in claim 5 wherein the substrate and the cover slip are flat, rectangular glass members.

54. A hybridization apparatus as in claim 5 wherein the thickness of the spacer segments is substantially constant.

55. A hybridization apparatus as in claim 5 further comprising additional spacer segments along the periphery of the bottom surface of the cover slip.

56. A hybridization apparatus as in claim 5 further comprising additional spacer segments on the bottom surface of the cover slip and located between said longitudinal spacer segments.

57. A hybridization apparatus as recited in claim 5 wherein at least two channels are formed between the recited spacer segments for the introduction of hybridization fluid into the hybridization chamber and the venting thereof.

Evidence Appendix

None

Related Proceedings Appendix

None